

KENDRIYA VIDYALAYA SANGATHAN, HYDERABAD REGION

SAMPLE PAPER 03 (2017-18)

SUBJECT: SCIENCE (086)

BLUE PRINT : CLASS X

UNIT	Chapter	VSA (1 mark)	SA – I (2 marks)	SA – II (3 marks)	LA (5 marks)	Practical Based Questions	Total	Unit Total
Chemical Substances - Nature and Behaviour	Chemical Reactions and Equations	--	--	3(1)	--	--	3(1)	25(8)
	Acids, Bases and Salts	--	--	3(1)*	--	2(1)	5(2)	
	Metals and Non-metals	--	--	--	5(1)	--	5(1)	
	Carbon and its compounds	--	--	--	5(1)*	2(1)	7(2)	
	Periodic Classification of Elements	--	2(1)	3(1)	--	--	5(2)	
World of Living	Life Process	1(1)	--	3(1)*	--	2(1)	6(3)	23(9)
	Control and Coordination	--	--	--	5(1)	--	5(1)	
	How do organisms reproduce?	1(1)	--	3(1)	--	2(1)	6(3)	
	Heredity and Evolution	--	--	6(2)	--	--	6(2)	
Natural Phenomena	Light - Reflection and Refraction	--	2(1)	3(1)	--	2(1)	7(3)	12(4)
	The Human Eye and the colourful world	--	--	--	5(1)	--	5(1)	
Effects of Current	Electricity	--	--	3(1)	--	2(1)*	5(2)	13(4)
	Magnetic Effects of Electric Current	--	--	3(1)*	5(1)	--	8(2)	
Natural Resources	Sources of energy	--	2(1)	--	--	--	2(1)	7(2)
	Our Environment	--	--	--	5(1) [#]	--	5(1)	
	Management of Natural Resources	--	--	--		--		
Total		2(2)	6(3)	30(10)	30(6)	12(6)	80(27)	80(27)

Note: * - Internal Choice Questions of same chapter.

- Internal Choice Questions of two chapters

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MAX. MARKS : 80

CLASS : X

DURATION : 3 HRS

General Instructions:

1. All questions are compulsory.
2. The question paper comprises of **two Sections, A and B**. You are to attempt both the sections.
3. All questions of **Section-A** and **Section-B** are to be attempted separately.
4. There is an internal choice in three questions of three marks each, two question of five marks and one question of Practical Based Question.
5. Question number **1 to 2** in **Section-A** are **one mark** question. These are to be answered in **one word** or in **one sentence**.
6. Question numbers **3 to 5** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.
7. Question numbers **6 to 15** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
8. Question numbers **16 to 21** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
9. Question numbers **22 to 27** in **Section-B** are questions based on practical skills and are **two marks** questions.

SECTION – A

1. Why are lungs divided into very small sac-like structures called alveoli?
2. What are those organisms called which bear both the sex organs in the same individual. Give one example of such organism.
3. Write the steps involved in generating electricity in a nuclear reactor.
4. (a) How are power and focal length of a lens related?
(b) You are provided with two lenses of focal length 20 cm and 40 cm respectively. What lens will you use to obtain more convergent light?
5. An element X (atomic number 17) reacts with an element Y (atomic number 20) to form a divalent halide.
(a) What is the position of element X and Y in the periodic table?
(b) What will be the nature of oxide of element Y? Identify the nature of bonding in the compound formed.
6. (a) What happens when an aqueous solution of sodium sulphate reacts with an aqueous solution of barium chloride? State the physical conditions of reactants in which the reaction between them will not take place. Write the balanced chemical equation for the reaction and also mention the type of reaction.
(b) What changes in the colour of iron nails and copper sulphate solution do you observe after keeping the iron nails in copper sulphate for about half an hour.
7. You are provided with three test tubes A, B and C which contain distilled water, acidic solution and basic solution respectively. If you are given blue litmus paper only, how will you identify the contents of each test tube?

OR

Explain the action of dilute hydrochloric acid on the following with chemical equations:

- (a) Magnesium ribbon (b) Sodium hydroxide (c) Crushed egg shells

8. Draw a flowchart to show the breakdown of glucose by various pathways.
9. "As the blood sugar level in our body falls insulin secretion is reduced." Justify this statement in the reference of feedback mechanism that regulates the timing and amount of hormone released.

OR

Name two hormones secreted by pancreas. Write one function of each.

10. Write the name of those parts of a flower which serve the same function as the following do in the animals: (i) Testis (ii) Sperm (iii) Ovary (iv) Egg
11. List any four factors which could lead to the formation of new species.
12. Differentiate between inherited and acquired trait. Give one example for each.
13. (a) What is meant by heating effect of electric current? Give two applications of heating effect of current.
(b) Explain why, tungsten is used for making the filaments of electric bulbs.
(c) 50 J of heat is produced each second in a $2\ \Omega$ resistor. Find the potential difference across the resistor.

14. Draw a labelled diagram of an electric motor. Explain its principle and working.

OR

- (a) When does an electric short circuit occur?
(b) What is the function of an earth wire? Why is it necessary to earth metallic appliances?

15. Harish and his friends were excited about the news of tomorrow's solar eclipse. Harish convinced his friends to witness the eclipse. Harish told them that looking at the sun directly or even into a mirror reflecting sunlight, may damage their eyes. So, Harish narrated the method to witness to natural phenomenon in the following ways:

- (i) Hold a concave mirror in hands and direct its reflecting surface towards the sun.
(ii) Direct the light reflected by the mirror on to a sheet of paper held close to the mirror.
(iii) Move the sheet of paper back and forth gradually until a bright, sharp spot of light is found on the paper sheet, hold the mirror and the paper in the same position for a few minutes.

Read the above information and answer the following questions:

- (a) What is the separation between the concave mirror and the paper sheet having a bright, sharp spot of light in hands?
(b) Draw the ray diagram used while observing the bright, sharp spot of light in above activity.

16. (a) Which hydrocarbons burn with (i) non-sooty blue flame and (ii) sooty yellow flame?
(b) What happens when methane reacts with chlorine?
(c) What is rectified spirit?
(d) Why does soap not work in hard water?
(e) What is glacial acetic acid?

OR

- (a) What is hydrogenation? Give one reaction. What is its industrial application?
(b) What is esterification?

17. (a) Draw and explain the structure of neuron and label cell body and axon.
(b) Name the part of neuron:
(i) where information is acquired
(ii) through which information travels as an electrical impulse.

18. (a) Write the chemical name of the coating that forms on silver and copper articles when these are left exposed to moist air.
(b) Explain what is galvanisation. What purpose is served by it?
(c) Define an alloy. How are alloys prepared? How do the properties of iron change when:
(i) small quantity of carbon,
(ii) nickel and chromium are mixed with it.
19. You are given that the diameter of the eyeball is about 2.3 cm and a normal eye can adjust the focal length of its eye lens to see objects situated anywhere from 25 cm to an infinite distance away from it.
(a) What is the power of the (normal) eye lens, when ciliary muscles are fully relaxed?
(b) What is the power of the (normal) eye lens, when ciliary muscles are in their maximum contract position?
(c) The maximum variation in the power of the eye lens, when it adjust itself, from the normal relaxed position to the position where the eye can see the nearby object clearly?
20. (a) Describe an activity to demonstrate the pattern of magnetic field lines around a straight conductor carrying current.
(b) State the rule to find the direction of magnetic field associated with a current carrying conductor.
(c) What is the shape of a current carrying conductor whose magnetic field pattern resembles that of a bar-magnet?
21. (a) Differentiate between biodegradable and non-biodegradable substances with the help of one example for each.
(b) State in brief two ways in which non-biodegradable substances would affect the environment. List two methods of safe disposal of the non-biodegradable waste.

OR

- (a) Name any four categories of people who depend on the forest resources, mentioning major needs of each category.
(b) What is 'Chipko Movement'?
(c) Why must we conserve our forests? List any two causes for deforestation to take place.

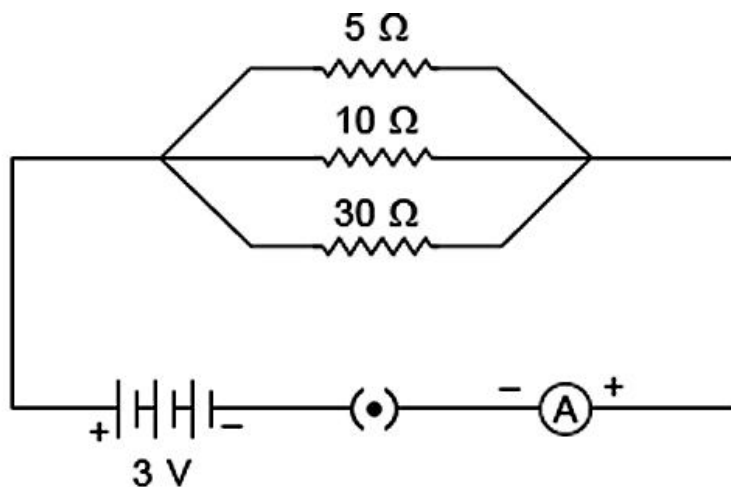
SECTION – B

22. Name the components which you will observe when you focus the stomata slide under high power objective of a microscope.
23. A student obtains a white precipitate on mixing two different salt solutions in a beaker. What could these two solutions be? Identify and name the type of this reaction.
24. "Vehicles in this mirror are closer than they appear". Why is this warning printed on the side view mirror of most vehicles?
25. Consider the following salts: Na_2CO_3 , NaCl , NH_4Cl , CH_3COONa . Which of these salts will give
(a) Acidic solution (b) Neutral solution and (c) Basic solution
26. Atom of an element contains five electrons in its valence shell. This element is major component of air. It exists as a diatomic molecule.
(i) Identify the element.
(ii) Show the bond formed between two atoms of this element.
(iii) Write the nature of the bond between the two atoms.

27. Draw a labelled circuit diagram to study the dependence of current (I) on the potential difference (V) across a resistor.

OR

In the circuit diagram given below, calculate :



- (a) the total effective resistance of the circuit.
- (b) the total current in the circuit.

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